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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,969	11/24/2003	Haim Kopylovitz	EMS-06901	5218
7590	05/03/2006		EXAMINER	
Patent Group Choate, Hall & Stewart Exchange Place 53 State Street Boston, MA 02109-2804			LOVEL, KIMBERLY M	
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			2167	
DATE MAILED: 05/03/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/720,969	KOPYLOVITZ, HAIM	
	Examiner Kimberly Lovel	Art Unit 2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 24 November 2003.

2a) This action is **FINAL**.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1-18 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-18 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 24 November 2003 is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/17/2004.

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.

5) Notice of Informal Patent Application (PTO-152)

6) Other: \_\_\_\_\_.

## **DETAILED ACTION**

1. Claims 1-18 are rejected.

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on 17 February 2004 was filed after the mailing date of the application on 24 November 2003. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Specification***

3. The abstract of the disclosure is objected to because it contains 216 words.

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Correction is required. See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 101***

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-18 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

**MPEP 2106 IV.B.2.(b)**

A claim that requires one or more acts to be performed defines a process. However, not all processes are statutory under 35 U.S.C. 101. Schrader, 22 F.3d at 296, 30 USPQ2d at 1460. To be statutory, a claimed computer-related process must either: (A) result in a physical transformation outside the computer for which a practical application is either disclosed in the specification or would have been known to a skilled artisan, or (B) be limited to a practical application.

Claim 1 recites a method of restoring data, comprising: providing data in a first storage area of a first type that contains sections of data; providing data in a second storage area of a second type wherein the second type has, for each section of data thereof, at least one of: a pointer to a corresponding section of data of the first storage area and a pointer to corresponding section of data of a third storage area of the first type; providing data in at least one other storage area of the second type; and for each particular section of data of the second storage area having a pointer to the third storage area, providing to a corresponding section of the first storage area an indirect pointer to a corresponding section of the third storage area if no storage areas of the at least one other storage area point to the corresponding section of the first storage area.

In the above limitation, there is no physical transformation being claimed, a practical application would be established by a useful, concrete and tangible result.

For the result to be tangible, it must be more than a thought or a computation and must have a real world value rather than being an abstract idea. The invention as recited in the claim is defining the structure of the data storage and therefore fails to provide the restoration of data as stated in the preamble. It is unclear to as what kind of tangible output is obtained by these limitations. Claims 2-9 are dependent on the method of claim 1, and therefore are rejected on the same grounds as claim 1.

Claim 10 recites computer software that restores data to a first storage area of a first type that contains sections of data from a second storage area of a second type that has, for each section of data thereof, at least one of: a pointer to a corresponding section of data of the first storage area and a pointer to corresponding section of data of a third storage area of the first type where there is at least one other storage area of the second type, the software comprising: executable code that iterates through each section of the second storage area; and executable code that provides to a corresponding section of the first storage area an indirect pointer to a corresponding section of the third storage area if no storage areas of the at least one other storage area point to the corresponding section of the first storage area.

The claim is directed towards software per se. Software per se fails to produce a tangible result. In order for the subject matter to be considered tangible, it must produce a useful, concrete and tangible result. Claims 11-18 are dependent on the computer software of claim 10, and therefore are rejected on the same grounds as claim 10.

To allow for compact prosecution, the examiner will apply prior art to these claims as best understood, with the assumption that applicant will amend to overcome the stated 101 rejections.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-7 and 10-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the article "File System Design for an NFS File Server" by Hitz et al (hereafter File System Design) in view of Patent No. 5,819,292 to Hitz et al (hereafter '292).

**Referring to claim 1**, File System Design discloses a method for restoring data. In particular, File System Design discloses a method of restoring data (see section 2: Introduction to Snapshots, lines 9-12), comprising:

providing data in a first storage area of a first type that contains sections of data (see section 3.4: Snapshots, lines 1-4 and 13-20 and Fig 3c, items A,B,C,D,E);

providing data in a second storage area of a second type wherein the second type has, for each section of data thereof (see Fig 3c – the root inode and New Snapshot are of the second *data type*), at least one of:

a pointer to a corresponding section of data of the first storage area and pointer to corresponding section of data of a third storage area of the first type (see section 3.4: Snapshots, lines 10-12); providing data in at least one other storage area of the second type (see Fig 3c – the third storage area contains the changed data D' and the root node of Fig. 3c contains pointers to the first storage area (A,B,C,D,E) and a pointer to the third storage area containing D'); and for each particular section of data of the second storage area having a pointer to the third storage area (see Fig. 3c – New Snapshot), providing to a corresponding section of the first storage area an indirect pointer to a corresponding section of the third storage area if no storage areas of the at least one other storage area point to the corresponding section of the first storage area.

While File System Design teaches a pointer to the third storage area for each particular section of data of the second storage area, File System Design fails to explicitly teach the further limitation of providing to a corresponding section of the first storage area an indirect pointer to a corresponding section of the third storage area if no storage areas of the at least one other storage area point to the corresponding section of the first storage area. '292 discloses a method for restoring data similar to that of File System Design including the further limitation of providing to a corresponding section of the first storage area an indirect pointer to a corresponding section of the third storage area if no storage areas of the at least one other storage area point to the

corresponding section of the first storage area (see column 18, line 49 through column 19, line 50 and Figures 18A-18C).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the indirect pointers of '292 as a subcomponent of the method for restoring data. One would have been motivated to do so since both are directed towards maintaining consistent states of a file system ('292: see abstract; File System Design: see abstract) and are written by common authors.

**Referring to claim 2**, Design/'292 discloses a method, according to claim 1, further comprising:

for each particular section of data of the second storage area having a pointer to the third storage area, providing to a corresponding section of the first storage area a doubly indirect pointer to a corresponding section of the third storage area if the at least one other storage area points to the corresponding section of the first storage area ('292: see column 8, lines 39-55 – occurs when the file size is greater than 64MB).

**Referring to claim 3**, Design/'292 discloses a method, according to claim 2, further comprising:

causing data to be copied from the third storage area to the first storage area for each section of the first area having associated therewith one of: an indirect pointer and a doubly indirect pointer ('292: see column 9, lines 25-48).

**Referring to claim 4**, Design/'292 discloses a method, according to claim 3, further comprising:

in response to a particular section of the first storage area having associated therewith a doubly indirect pointer, copying data from the particular section of the first storage area to a new section of the third storage area prior to causing data to be copied to the particular section of the first storage area ('292: see column 9, lines 25-48).

**Referring to claim 5**, Design/'292 discloses a method, according to claim 1, further comprising:

prior to replacing a corresponding section of the first storage area, disabling access to the first storage area and the second storage area ('292: see column 12, lines 39-47).

**Referring to claim 6**, Design/'292 discloses a method, according to claim 5, further comprising:

after replacing a corresponding section of the first storage area for all of the particular sections of data of the second storage area having a pointer to the third storage area, enabling read and write access to the first storage area and enabling read access to the second storage area ('292: see column 12, lines 43-45 – after the consistency flag is lifted, then read and write access is enabled).

**Referring to claim 7**, Design/'292 discloses a method, according to claim 5, further comprising:

after replacing a corresponding section of the first storage area for all of the particular sections of data of the second storage area having a pointer to the third storage area, enabling read and write access to the first and second storage areas.

('292: see column 12, line 48 – column 13, line 2 – after the global consistency flag is lifted, then read and writes can occur).

**Referring to claim 10, File System Design discloses a method for restoring data. In particular, File System Design discloses Computer software that restores data to a first storage area of a first type that contains sections of data (see section 3.4: Snapshots, lines 1-4 and 13-20 and Fig 3c, items A,B,C,D,E) from a second storage area of a second type (see Fig 3c – the root inode and New Snapshot are of the second data type) that has, for each section of data thereof, at least one of:**

a pointer to a corresponding section of data of the first storage area and a pointer to corresponding section of data of a third storage area of the first type where there is at least one other storage area of the second type (see section 3.4: Snapshots, lines 10-12), the software comprising:

executable code that iterates through each section of the second storage area (see section 3.4: Snapshots, lines 34-43 and Fig 4); and

executable code that provides to a corresponding section of the first storage area an indirect pointer to a corresponding section of the third storage area if no storage areas of the at least one other storage area point to the corresponding section of the first storage area.

While File System Design teaches a pointer to the third storage area for each particular section of data of the second storage area, File System Design fails to explicitly teach the further limitation of providing to a corresponding section of the first storage area an indirect pointer to a corresponding section of the third storage area if no

storage areas of the at least one other storage area point to the corresponding section of the first storage area. '292 discloses a method for restoring data similar to that of File System Design including the further limitation of providing to a corresponding section of the first storage area an indirect pointer to a corresponding section of the third storage area if no storage areas of the at least one other storage area point to the corresponding section of the first storage area (see column 18, line 49 through column 19, line 50 and Figures 18A-18C).

**Referring to claim 11,** Design/'292 discloses Computer software, according to claim 10, further comprising:

executable code that provides to a corresponding section of the first storage area a doubly indirect pointer to a corresponding section of the third storage area if the at least one other storage area points to the corresponding section of the first storage area ('298: see column 8, lines 39-55 – occurs when the file size is greater than 64 MB).

**Referring to claim 12,** Design/'292 discloses Computer software, according to claim 11, further comprising:

executable code that causes data to be copied from the third storage area to the first storage area for each section of the first area having associated therewith one of: an indirect pointer and a doubly indirect pointer ('292: see column 9, lines 25-48).

**Referring to claim 13,** Design/'292 discloses Computer software, according to claim 12, further comprising:

executable code that copies data from the particular section of the first storage area to a new section of the third storage area prior to causing data to be copied to the

particular section of the first storage area in response to a particular section of the first storage area having associated therewith a doubly indirect pointer ('292: see column 9, lines 25-48).

**Referring to claim 14;** Design/'292 discloses Computer software, according to claim 10, further comprising:

executable code that disables access to the first storage area and the second storage area prior to replacing a corresponding section of the first storage area ('292: see column 12, lines 39-47).

**Referring to claim 15,** Design/'292 discloses Computer software, according to claim 14, further comprising:

executable code that enables read and write access to the first storage area and enabling read access to the second storage area after replacing a corresponding section of the first storage area for all of the particular sections of data of the second storage area having a pointer to the third storage area ('292: see column 12, lines 43-45 – after the consistency flag is lifted, then read and write access is enabled).

**Referring to claim 16,** Design/'292 discloses Computer software, according to claim 14, further comprising:

executable code that enables read and write access to the first and second storage areas after replacing a corresponding section of the first storage area for all of the particular sections of data of the second storage area having a pointer to the third storage area ('292: see column 12, line 48 – column 13, line 2 – after the global consistency flag is lifted, then read and write access can occur).

7. Claims 8-9 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the article "File System Design for an NFS File Server" by Hitz et al in view of Patent No. 5,819,292 to Hitz et al as applied to respectively to claims 1 and 10 above, and further in view of US Patent No. 6,460,054 to Grummon (hereafter Grummon).

**Referring to claim 8,** Design/’292 discloses a method of restoring data using snapshots. However, Design/’292 fails to explicitly teach the further limitation wherein the storage areas are devices. Grummon teaches a method similar to that of Design/’292 for restoring data using snapshots. In particular, Grummon teaches a method, similar to that of claim 1, wherein the storage areas are devices (see column 1, lines 29-59).

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the claimed method wherein each storage area is a storage device. One would have been motivated to do so to allow management of data at a low (logical volume/disk formatting) level, thus allowing efficient storage of data on physical media.

**Referring to claim 9,** the combination of Design/’292 and Grummon (hereafter Design/’292/Grummon) discloses a method, according to claim 8, wherein the sections are tracks (Grummon: see column 1, lines 29-59).

**Referring to claim 17,** Design/’292 discloses Computer software for restoring data using snapshots. However, Design/’292 fails to explicitly teach the further limitation wherein the storage areas are devices. Grummon teaches Computer software similar

to that of Design/'292 for restoring data using snapshots. In particular, Grummon teaches Computer software, similar to that of claim 10, wherein the storage areas are devices (see column 1, lines 29-59).

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the claimed software wherein each storage area is a storage device. One would have been motivated to do so to allow management of data at a low (logical volume/disk formatting) level, thus allowing efficient storage of data on physical media.

**Referring to claim 18**, the combination of Design/'292 and Grummon (hereafter Design/'292/Grummon) discloses Computer software, according to claim 17, wherein the sections are tracks (Grummon: see column 1, lines 29-59).

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly Lovel whose telephone number is (571) 272-2750. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cottingham can be reached on (571) 272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kimberly Lovel  
Examiner  
Art Unit 2167

kml  
28 April 2006



JOHN R. COTTINGHAM  
PRIMARY EXAMINER

10/22